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The Scope and Method of the Federal Census.

The Federal census of to-day presents many difficulties with respect to the enumeration, tabulation and presentation of the varied data comprehended in the law by which it is now governed, and in undertaking to consider its scope and method, as at present outlined, it is impossible for any one who has had any practical experience in census work, and particularly in connection with the work of the United States census at either of the last two enumerations, to refrain from finding fault, at the very outset, with the temporary nature of the system under which it is taken.

At the earlier enumerations there was not much reason for making any special or permanent provisions for carrying on the census work, involving, as it did up to 1850, nothing more than a simple enumeration of the number of persons in each family according to their color, sex and age, with the addition from time to time of a few other details; so that the conditions that prevailed then, and the results to be attained, did not warrant any preparation beyond the temporary provisions which were made for the work at each decennial period. But, commencing with 1850, the method and scope of the census were materially modified, and it comprehended at that and the two succeeding enumerations not only a detailed statement of the name, age, sex, color, nativity, occupation, education and physical and mental condition of each person enumerated, but, in addition, very nearly one hundred inquiries relating to agriculture, industry, mortality, schools, libraries, churches, newspapers and periodicals, and the valuation and taxation of property.

This extension of the scope and change in the methods, but not the machinery, of the census (the marshals and assistant marshals being still employed, as theretofore, to make the enumeration), necessitated the organization of a Census Office in the Department of the Interior at Washington, from which the work of the enumeration could be supervised and directed, and to which the returns, when completed, could be sent for tabulation and presentation. Theretofore the law had required that abstracts, showing for the various civil divisions the number of each class of persons called for by the census act, should be made by the marshals from the original returns and forwarded to the Secretary of State, for publication in practically the same form as transmitted by them. There was no necessity, therefore, prior to 1850 for a separate office at Washington to which should be given the supervision of the census, but when the scope of the decennial enumeration was broadened so as to cover many subjects and to include many particulars, and the duty of compiling the returns was taken from the marshals and charged upon the authorities at Washington, the need of an office with a superintending head to have direct control of the work was recognized by Congress, and provision was made by the law of 1850 for the appointment of a superintendent of the census, and, in effect, the establishment of a temporary Census Office.

This office was called into existence at the commencement of the enumeration (June 1) in 1850 and 1860 and a few months prior to the enumeration in 1870, and was disbanded upon the substantial completion of the work at each census period. Between 1860 and 1870, however, a clerk was retained in charge of the census records, while between 1870 and 1880 there was not

only a clerk retained, in the person of the former chief clerk of the census office, but, in addition, General Walker, who had been the superintendent of the ninth census, by request of the Secretary of the Interior continued to serve in that capacity without pay and was, therefore, in official charge of census matters and was consulted with respect to the legislation which so radically changed the method of taking the tenth census and expanded its scope beyond all precedent. So, while the census was still taken under a temporary system, the threads of the census organization at the ninth census were not lost in any essential particular, and some of the experience gained and precedents established at that census were available and could be utilized, if need be, in the work of the tenth census, taken under the superintendence of General Walker, and in accordance with the general features of the plan recommended and advocated by him for making it, following the popular sentiment of the times, a centennial census.

The unfortunate conditions attending the completion of the work of the tenth census,—the depleted state of the census appropriation at an early stage of the work; the resignation of General Walker as superintendent in less than a year and a half after the commencement of the enumeration; the subsequent illness and death of Mr. Seaton, the former chief clerk, who succeeded him as superintendent, and the abolition of the Census Office early in 1885, although the publications of the census were in no wise completed,—had a very great influence in producing conditions which did not operate to the advantage of the commencement of the work of the eleventh census. The final completion and publication of the reports of the tenth census extended very nearly to the close of the period from 1880 to 1890, the last

volume hardly having been given to the public when the preparatory work of the eleventh census was begun, and, in fact, some of the subjects of inquiry, for which a good deal of matter had been collected and prepared, were finally abandoned and no results were ever printed.

The Census Office having been abolished meanwhile and a census division established in its place, the remnant of the census force was kept busy with the effort to complete the publication of the census reports, and the chief of this division, who afterwards became the census clerk, had no time to pick up the threads in readiness for the work of the eleventh census. This was not the fault of the census clerk, however, but the inevitable result of the temporary system under which he was compelled to work. It is true, nevertheless, that the records of the tenth census were not in good shape to be used readily in connection with the preparatory work of the eleventh census, and, as a matter of fact, consisted largely of a "mass" of material, of great weight and bulk, which had been moved from place to place, as each branch of the work was closed up, until it finally found a resting place in the depository of census matters in the Department of the Interior building. This mass of material, consisting principally of waste paper, contained a few nuggets of census information but no "precedents" upon which to base intelligent action, and required many weeks of hard work on the part of several laborers before it could be put into condition for practical use, so far as it had any real value in shaping the work of the eleventh census.

It was not the original purpose to have the tenth census duplicated, and yet the law of March 1, 1889, under which the eleventh census was taken, supplemented by later legislation requiring information as to "farms,

homes, and mortgages," resulted practically in as many different subjects of inquiry and as many volumes constituting the final report, but perhaps more nearly statistical in their character and containing less historical and technological matter. In effect, however, the eleventh census was just as comprehensive as the tenth and the work was carried on under practically the same conditions of temporary organization, that is, an entirely inadequate length of time in which to prepare for the work, a more or less fitful life under varying political conditions, a considerable but unavoidable delay in the publication of the final reports, and a gradual contraction from 25 divisions in the Census Office to a single census division in the office of the Secretary of the Interior, and finally to a single census clerk, guarding about the same bulk of census "records." And the census soon to be taken, the twelfth, is likely to comprehend very nearly as many particulars, as there is very little reason to suppose that the scope of the census will in reality be lessened.

If the proposed legislation is finally effected,¹ however, the attempt will not be made to cover, as in 1880 and 1890, the entire range of subjects at one and the same time, resulting in much perplexity and often times confusion of effort, but the four most important subjects of inquiry will be taken in hand first, at the time of the decennial enumeration, and the less urgent, if not less important, topics reserved until a later period. In this proposal to distribute the work over the full period of ten years, if need be, lies, moreover, the hope of the twelfth census. It would have been better to have had an office established fully two years before the period of enumeration, but failing in that, it will at least be an

¹ For the main provisions of the new law see appendix to this volume.

improvement over its immediate predecessors to have the decennial work limited to a few subjects, to be carefully and accurately enumerated and prepared for publication before any of the special subjects proposed shall be investigated; or, in other words, that none of these special investigations shall be allowed to interfere, in any way, with the early completion of what the bill terms the "census reports"—those relating to the population, agriculture, manufactures, and vital statistics of the country.

It is apparent from what has been said that, while the comparatively simple decennial enumeration of population instituted in 1790 has expanded, in recent enumerations, into an extremely comprehensive census, so far as the number and variety of subjects considered are concerned, and in this aspect of the case has kept fully abreast of the great increase in the population of our country and the wonderful development of its resources, yet the system under which the census has been taken, even though it may have provided adequately, perhaps, for the increased number of the subjects to be investigated in point of money and force to do the work, has not been perfected along the lines which would provide sufficient time for the necessary preparations and for the continuous services of a force of experts trained at least in the practical work of census taking.

In these two very important particulars,—lack of time to prepare for the work and lack of a trained force to do the work,—the census legislation, in recent years especially, has been sadly deficient, and it is largely on account of these two things that the effectiveness of census work has been lessened and its accuracy and reliability questioned. All the faults of the census, particularly at the last two enumerations, aside from the

faults which are inherent in the census itself, can safely be set down to these two causes, and until this condition of affairs is remedied, the credibility of the Federal census will be doubted and criticisms made which can not be successfully refuted. And still at the same time, it must be remembered, no one official or set of officials can be held responsible. There is no question as to the integrity of the officials who have been charged with the prosecution of the work, nor can the conscientiousness of their efforts, working under such a system, be doubted for a moment. And unless this point is made clear beforehand, that the system is mainly at fault, criticism of the census, no matter by whom or for what purpose, is not fair, especially when that criticism, however just, carries with it an implied, if not always expressed, criticism of the men charged with the execution of the work, who are thus made responsible for all the imperfections of the census of whatever kind.

It should also be borne in mind that the officials charged with the prosecution of the census have had no hand, as a rule, in shaping the legislation which governed their work, and although some things from the standpoint of practical experience might have suggested themselves, there was no time after their appointment to effect any material change in the census act. The law specifies certain things to be done and indicates the machinery with which it shall be accomplished, and the superintendent, who has had no voice in molding the law, is compelled to carry out its mandates to the best of his ability, with the material at hand, and with little time in which to make his preparations for accomplishing the truly herculean task of taking a census of the population, wealth, and industry of the country, as the law expressly provides.

The real work of the census consists of the three grand divisions of enumeration, tabulation and presentation, comprehending, first, the collection of the data by the various agencies employed, whether enumerators, special agents, or by correspondence; second, its classification and arrangement in accordance with well-matured plans and methods; and third, its proper analysis and presentation within a reasonable length of time after the completion of the actual field work. These three divisions of the census work, as now projected, involve, however, an amount of preparatory work well-nigh beyond the power of any one man, however well trained he may be in census methods and without reference to the degree of zeal and enthusiasm with which he may enter upon his work. And this is particularly true, when the limited time that is given for preparations and the conditions under which it must be prosecuted are considered. The requirements of the eleventh census in these particulars afford sufficient data from which may be deduced the probable conditions that will obtain with respect to the preparatory work of the twelfth census.

The eleventh census was taken under the provisions of the act approved March 1, 1889, which directed that a census of the population, wealth, and industry of the country should be taken as of June 1, 1890, and that for this purpose a Census Office should be established in the Department of the Interior, and a superintendent of the census appointed by the President, to have, under the direction of the Secretary of the Interior, the superintendence and direction of the census work. The first step in the organization of this office was not taken, however, until very nearly two months later by the appointment on April 17, 1889, of Hon. Robert P. Porter

as superintendent of the census. This gave a little more than thirteen months in which to prepare for the work of the eleventh census, or substantially the same length of time as was given for preparations at the tenth census, which it followed very closely, both in scope and methods.

When Mr. Porter came to Washington to begin his preliminary work, there remained, as already stated, but a single officer out of all the brilliant array of chiefs and experts who had been gathered together by General Walker in 1880 and who had contributed so fully and freely of their knowledge and attainments to make that census, with its many varied and specialized features, such an encyclopædic affair. This legal holdover, known in the office of the Secretary of the Interior as the "census clerk," was the only person, therefore, from whom any specific information could be obtained as to the condition of the records and papers relating to that census, which might have a bearing upon the work of the eleventh census.

Starting then with but a single clerk, the superintendent of the census had to begin his work at the bottom, and with but few records and no precedents to guide him, he had not only to seek persons of experience to assist him, but also to find temporary quarters and to make contracts for suitable buildings, to be erected in time for the census operations, in which to house the millions of schedules and blanks to be printed and used by a small army of enumerators and agents, and in which further to provide adequate quarters for a somewhat smaller, but no less industrious body of clerks soon to be called to make the great count of population and to compile all the varied statistics comprehended by the census act. These entirely preliminary matters at-

tended to, his next duty was to devote his energies to the real work of preparing for the decennial enumeration—the house-to-house canvass,—involving the division of the country into 175 supervisors districts, one or more to each state or territory ; to find suitable persons to be recommended by the Secretary of the Interior for appointment by the President as supervisors ; to instruct the supervisors, when appointed, in the duties required of them under the census law ; to institute the geographical work of the census, by which the division by each supervisor of his district into subdivisions convenient for enumeration, very nearly 50,000 in number, and subject to the superintendent's final approval, could be properly and intelligently scrutinized, and to determine, so far as possible, the boundaries of the many thousands of minor civil divisions of varying character and organization, for which a separate return of population should properly be made ; to approve the lists of persons selected by the several supervisors to act as enumerators within their respective divisions ; to fix in advance the rates of compensation of enumerators, according to the nature of the region to be canvassed, the density or sparseness of settlement, or other equally pertinent considerations ; to prepare the various schedules and blanks to be used by the enumerators in their work, and the detailed instructions concerning the manner in which they should be filled ; to provide properly for sending these schedules, blanks, and instructions, when printed, and numbering upwards of 25,000,000 in all, in sufficient quantities to meet every requirement of the enumeration, and in ample season to have the work commenced on the first Monday in June in every part of the three million or more square miles of territory to be canvassed ; in short, to bring into active operation

every agency and resource necessary to a prompt and thorough canvass of the country, conducted in such a manner as to insure a substantially accurate and complete record by the enumerators with respect to the population, the products of agriculture and of manufactures, the statistics of mortality, the afflicted classes, and of crime, pauperism, and benevolence, and, finally, the special record of service required concerning the Union survivors of the civil war. But this was not his whole duty. While preparing for the general enumeration, he had to receive and consider thousands of applications, presented in person and by proxy, for positions in the census, and to devise a system of examination by which their general fitness could be determined; to examine the many projects and propositions brought to his attention, not contemplated, perhaps, by the census act in specific terms, but possessed of sufficient merit to warrant careful consideration under the discretionary power given to the Secretary of the Interior over the form of the schedules of inquiries to be by him prescribed; and, in addition, to outline the plan and the methods to be pursued in conducting the many special branches of census inquiry, which were to be carried on without reference to the general enumerators, and many of which, not being dependent upon the decennial period, could be instituted at once; that is to say, complete statistics concerning the fisheries, mines and mining, education, churches, insurance, wealth, debt and taxation, the various agencies of transportation, and the recorded indebtedness of private corporations and individuals, besides a special enumeration of all Indians, taxed and not taxed, living within the jurisdiction of the United States, and a separate census of the population, wealth, and resources of Alaska.

It should be remembered, too, that due consideration for the demands of statistical science required that every preparation for the general enumeration or for the prosecution of the special features should be made with reference to the tabulation and presentation of the material collected, in order that the results of the census, and the conclusions to be derived from them, should not rest on a false basis, but present a correct and true statement of the conditions of population, wealth and industry as they existed at the decennial period.

This, in brief, was the work "cut out" for the superintendent of the eleventh census to provide and prepare for in thirteen months, and from this summary it is easy to realize that the task that is likely to be set for the director of the twelfth census cannot differ much from what was actually required in connection with the preliminary work of the eleventh census. The time given for preparations for the twelfth census cannot much exceed that allowed at the tenth and eleventh censuses, and the amount of preparatory work to be done is, for all practical purposes, equal to that necessary to the eleventh, with the exception that the director will not have quite so many subjects over which to divide his time and attention, and that for no subject of investigation, as now contemplated, will it be necessary to commence the field work prior to the time of the general enumeration; but the detail of preparation for the decennial work, involving the house-to-house canvass, will not be lessened in any degree, and will severely tax all the energy and application of which the human frame is capable. Two years is none too long for making the necessary preparations, but, unfortunately, this is out of the question with respect to the work of the twelfth census, and barely half that period will remain available

after the necessary organization has been effected. To institute the work of the census under such conditions is indeed a great task, and one before which, in the merest contemplation of the possibilities of disaster, the strongest man, in vigor and equipment, may well quail.

Realizing, then, the conditions under which the work must be entered upon, requiring haste in every preparation, it is at least a consolation to know that relief is promised in two directions, first, in the limited number of subjects to be canvassed at the decennial period, as already stated, and second, in the better organization proposed in the way of securing to the director the services of an assistant director, who shall be an experienced, practical statistician, and of five chief statisticians, who shall be persons of known and tried experience in statistical work.

These changes are in the right direction. They affect not only the work of the director of the census, in the way of lightening his preliminary duties and giving him the chance to secure the services of expert assistants, but the limitation of subjects to be investigated has a very great bearing upon the work of the general enumerators. They should be charged with but a few matters,—the fewer the better, under present conditions,—if the requirements of the house-to-house canvass are to be fulfilled intelligently and with due regard to the accuracy and completeness of the answers to be returned. At the eleventh census, the majority of the enumerators were charged with the duty of returning answers to very nearly seven hundred inquiries or details concerning the general population, the products of agriculture and manufactures, the decedents, the defective, dependent and delinquent classes, and the Union survivors of the civil war. Under the provisions of the

census act, the inquiries relating to manufactures could be withdrawn from the general enumerators in the cities and important manufacturing centers, while those relating to mortality could also be withdrawn in states and cities where a fairly satisfactory system of registration was in vogue. Again, too, the inquiries concerning agriculture would not be particularly applicable in closely-settled districts, so that the burden of the work in this respect would not have much effect upon the enumerators in such areas. But making allowances for all these considerations, the fact still remains that in very much more than one-half of the districts, the number of possible inquiries to be made by the enumerators was very nearly seven hundred. The policy of the census officials is to lighten the work of the general enumerator, so far as the law will permit and the exigencies of the case will allow, and the principle, established by the law of March 3, 1879, of employing experts and special agents without regard to locality to collect the data not directly dependent upon the house-to-house enumeration, was made use of to a considerably greater extent in 1890 than in 1880, with a corresponding increase in accuracy and more complete details secured; and it is a source of gratification to know that under the legislation proposed for the coming census, a much less number of inquiries will have to be asked, as a rule, by the enumerators charged with the decennial canvass to be made as of June 1, 1900.

The provision for three hundred supervisors in 1900 is another change in the right direction. There were one hundred and fifty supervisors at the census of 1880 and one hundred and seventy-five at the census of 1890, or, on the average, about one supervisor to each third of a million inhabitants; so that no gain was made in this

respect in 1890 over 1880, but with the increased number proposed for the census of 1900, there will be, on the basis of 77,000,000 inhabitants, an average of one supervisor to each quarter of a million persons to be enumerated. This means, after allowing for the appointment under the law of a supervisor for each state and territory where the population will either fall below or not much exceed a quarter of a million, say in twelve or fifteen instances in all, the opportunity to divide the remainder of the country into comparatively compact districts, with a relatively small number of inhabitants in most cases. It will also enable the director, if he so desires, to have the enumeration of all cities of considerable size made under the immediate supervision of a resident supervisor especially appointed for that purpose, and, furthermore, to have the work carried on under his direction in co-operation with the city officials, so that there shall be no reason why the canvass may not be made as complete and satisfactory to all parties concerned as the nature of the work and existing conditions will permit. Such an arrangement, too, will largely overcome the fault at preceding censuses, owing to the limited number of supervisors, of having, with few exceptions, no one in direct charge of the enumerators employed in taking the census of the larger cities, and will obviate the necessity, as has often been suggested, of designating one of the enumerators, in the interest of an accurate census, to act as chief enumerator or assistant to the supervisor, to have the immediate charge of the work in such cities where the supervisor's district comprises more territory than that embraced in a single city, and of which the supervisor may not be a resident or have therein his headquarters. Anything that reduces the size of the district to be supervised and con-

centrates the efforts of the supervisor over compact and well-defined areas is an improvement and will have a tendency, at least, to ensure better and more complete returns.

With the larger number of supervisors' districts, resulting in a somewhat smaller number of enumeration districts, on the whole, to be handled by a single supervisor, will also come the benefit of the greater local knowledge on the part of the supervisor of the territory under his jurisdiction; a better subdivision, in conjunction with the census officials, of the territory into enumeration districts; a more intimate acquaintance with the minor civil divisions included in each enumeration district for which a separate return of population is desirable; more direct and personal contact with the enumerators selected and appointed by him in his district; and the opportunity, if time will allow, for instituting, without great expense, some preliminary test for determining the general fitness of the applicants for appointment as enumerators and their knowledge of and familiarity with the printed instructions to be followed in the prosecution of the decennial work.

The increase in the number of supervisors' districts does not mean necessarily any increase in the number of enumeration districts. The limit as to size proposed for an enumeration district in 1900 is the same as at the censuses of 1880 and 1890, namely, not to exceed 4,000 inhabitants, to be determined at the census of 1900 according to estimates based upon the last census or other reliable information. On the basis of the number of regular enumerators¹ at the last census, or, in round

¹ Excluding "institution" enumerators, that is, those appointed for the purpose of enumerating the population in the large institutions of the country,—generally the clerk or other official having access to the

numbers, 43,500, and assuming an aggregate population in June, 1900, of 77,000,000, the average size of the districts would be less than 1,800; if, on the other hand, it were possible to equalize the districts so that they should average, approximately, 2,500 persons, but 30,800 enumerators would be needed; or if the average is raised to 3,000 there would be between 25,000 and 26,000; and if the full limit of 4,000 is nearly maintained, there would be less than 20,000 enumerators in all. So that it is easy to see that with the relatively large increase in the number of supervisors and a decrease, if anything, in the number of enumerators, if a fair average population to an enumeration district is maintained, much closer supervision of the work of the enumerators can be had with correspondingly better results, if the necessary and proper provisions are made therefor. In the direction of a better and more intimate acquaintance with the characteristics of the district to be canvassed, and the consequent designation to be made beforehand and the specific instructions given to each enumerator concerning the areas within his enumeration district for which the population should be separately stated, this provision of the law governing the work of the twelfth census is a marked advance over its predecessor. And in the matter of securing a correct return of the population of the lesser divisions of the country, that is, the small incorporated cities, villages and places included within the areas of towns and townships, and often bearing the same name as the town or township of which it forms a part, there seems every reason to expect much better results than

records of such institutions,—and the small number appointed to re-enumerate districts where the first enumeration was incomplete or improperly done.

were possible under the conditions that obtained at the census of 1890. There is not much more time, it is true, but with the larger number of supervisors and the relatively smaller districts to be supervised, there should be considerable improvement in this respect. If such should prove to be the case, in fact, it will be a source of gratification in more ways than one. No more difficult task was imposed upon the officials at Washington at the last census than to determine from the returns of the enumerators the correct population of the minor civil divisions of the country, the Census Office in hundreds of cases being compelled to make the statement in the table of population by minor civil divisions that the population of the specified area was not returned separately from that of the town or township of which it formed a part. The failure on the part of many of the enumerators to make their return of population in such a manner as to enable the Census Office to determine the correct number of persons living within these smaller areas on June 1, 1890, resulted in much confusion and many legal complications, and this, too, in spite of the fact that an attempt was made by the Census Office after the completion of the enumeration to supplement the work of the enumerators by means of correspondence with the local officers and by sending lists of persons enumerated for their guidance, in an effort to determine these populations, at an expenditure of several thousand dollars and much labor, but oftentimes with very poor success. These omissions were often a source of much annoyance and trouble, especially in those cases where state law made it obligatory in the absence of definite information through their own state or local censuses, to have the Federal census taken as the basis in fixing the population of certain areas. This was notably the

case in New York state where the excise law provided that the amount of the tax should be determined in proportion to population, under a classification fixed by the excise law, but based upon the return of population for such areas as shown by the last Federal census (that of 1890). It happened, however, that in New York the population of very many of the villages, often having the same name as the towns in which they were situated, was not separately stated in the report of the Federal census, and as under the law they could not be otherwise determined, a much smaller excise tax was collected than was actually allowable, but which the courts, after much litigation and delay, decided could not be exacted, and which resulted in the loss to the state and municipalities affected of thousands of dollars of revenue from this source. This is but a single instance, with which the writer is personally conversant, but there is no doubt that much trouble and possibly litigation were occasioned in other directions from the failure of the census enumerators so to make their returns as to render such omissions impossible. It was not possible to have prevented this condition of affairs through the efforts and instructions of the census superintendent and his assistants as a part of the preliminary preparations for the enumeration, as the time was so limited that, in many cases, the subdivision of districts by supervisors, which should have received careful scrutiny and examination before acceptance, had to be approved with little or no examination, and in some cases by telegraph without any examination whatever; and this involved, in such cases, as a matter of course, the acceptance of the lists of enumerators designated by the supervisors without any opportunity on the part of the census officials to determine, in the most cursory way, their general

capacity for the work. Some of these conditions are likely to occur at the census of 1900, through lack of time, as in 1880 and 1890, but heroic effort should be made by the director of the census to overcome, so far as possible, these particular deficiencies in the enumeration; and this is all the more necessary, inasmuch as the proposed bill provides that the subdivisions established for the purposes of the enumeration shall be declared and the boundaries fixed by the Director of the Census, after consultation with the several supervisors of census.

The legislation proposed for the twelfth census, in addition to limiting the decennial work to four subjects, defines the topics concerning which inquiry shall be made, but gives the director of the census discretionary power as to the number and form of the inquiries necessary to secure the desired information. In view of the limited time in which to prepare for the work, and the desirability of having a reasonably prompt publication of the results, this provision seems fair and proper, as without some restriction relative to the scope of the inquiries to be made, the tendency is always to ask too much, to undertake too elaborate an inquiry, for fear possibly that in the hurry of preparation something will be left out that upon later consideration may be deemed essential to the completeness of the topic under investigation. In this way many useless data are apt to be collected, which it is impossible properly to classify and reduce to practical form, with any ordinary expenditure of time and money. It is in the interest of accurate results, therefore, to limit the scope of the inquiries to be made by the census enumerators, as under the best of conditions it is difficult to prepare the instructions beforehand so as to meet every contingency of the work and to answer every query which may arise in

the mind of the enumerator. Indeed, it is hard to get thoroughly intelligent and efficient persons to act as enumerators, and the simpler the work is made and the fewer the inquiries asked, the better will be the results achieved. The experience of the past teaches that the amount of work required, the length of time employed, and the usually inadequate compensation allowed have had a tendency to deter the better class of persons from undertaking this work, and the results of the census have had to suffer for these reasons. This is not alone true of this country, but a similar experience has been reported in connection with the census of Great Britain. The brief period of employment and small compensation have operated there in the same direction as here, and the persons appointed as enumerators have not averaged any better than in this country, although they have there a nucleus force to supervise the work, in the registrars and sub-registrars, whose business it is to deal with records and who have some apprehension of the difficulties in the way of getting complete returns through the ordinary census channels and a thorough appreciation of the desirability of having the services of intelligent and painstaking persons to do the actual work of enumeration. In spite of this, however, the work of securing competent enumerators has not been altogether successful, and in many cases, as in this country, the offices have gone begging and have been filled more from reasons of charity than from the ability of the persons selected properly to do the work. In this country, attempts have been made to make the pay better, and increases have been made at each census, but these increases are not wholly based upon data derived from the records of the preceding censuses, as would be the case if a permanent office

was in existence and there was time in which carefully to apportion the various rates, with a full knowledge of the characteristics of the several districts and the difficulties to be met in the enumeration in the various sections of the country. Per diem rates of pay offer the only solution of these difficulties, but they are not possible now, perhaps, on account of the lack of time in which to provide the necessary checks and safeguards against delays, instituted solely for the purpose of prolonging the work with a view of increasing the total amount of compensation to be received. These checks and safeguards would increase the cost of supervision, it is true, but it would simplify the work in every way, and would have the further advantage of offering beforehand a fair day's pay for an honest day's work and, if proper means were devised to prevent, would not result in a wholesale swindling of the government. I doubt, too, if the cost of this additional supervision would be much greater than will now be the case, if the supervisors are charged with the duty of examining the returns on the various census schedules, as the bill now pending contemplates, in order to determine the correctness of the accounts of the enumerators, to be certified to by said supervisors and to be accepted and paid by the Director of the Census upon such certification, without any verification on the part of the central office at Washington. It means the count of population in each enumeration district by the supervisor thereof, and a summary, in each case, of the number of deaths returned and of farms and establishments of industry enumerated, in order to verify the statements of the enumerators in each of these particulars. In this connection, too, it should be borne in mind that the supervisors of census, as a rule, have had no experience

in census work, and are unaccustomed to the great rush of work that is inevitable, under present conditions, at the decennial period. They, too, need supervision and guidance, and with the multiplicity of inquiries likely to be made of them by the enumerators of their several districts will be kept fully occupied during the full period of the enumeration and cannot take up the work of examining the returns until the canvass of their district is substantially completed. If per diem rates of pay could be safely established throughout the country, the supervisors would be alone charged with the duty of examining the enumerators' returns solely with reference to the completeness of the canvass made, and the census officials at Washington could readily determine whether the time occupied in the enumeration was a fair average in accordance with similar work done in any particular section of the country, and it would only be in those cases where, from the small amount of work performed and the relatively long time consumed, it was manifest the work had been unnecessarily prolonged that the payment of the enumerators' accounts would have to be suspended for a more careful examination and explanation.

Upon the completion of the enumeration and the receipt of the schedules at Washington, the work of tabulation begins, and for this purpose a large clerical force must be organized and trained. Here again the temporary nature of the census system operates to the disadvantage of the work and entails a great burden upon the census superintendent in the selection from a host of applicants of the force necessary to perform all the various duties essential to the rapid and systematic compilation of the census returns. At the census of 1870 the clerical force was secured through an "office" ex-

amination instituted by the superintendent of the census, but at the census of 1880 no such examination was required and the clerks were selected without any preliminary test of their general fitness for the work. At the census of 1890, although the civil service rules and regulations covered the clerical force of the executive departments of the government, the census clerks and employees were not included, but their examination was left to the discretion of the Secretary of the Interior, and entrance to the work of the census was had by means of an examination conducted in the Census Office by a board of examiners appointed by the Secretary of the Interior. A somewhat similar provision is proposed to govern the clerical appointments for the census of 1900, but the stipulation is made that the examination to be prescribed, if any, shall have reference solely to the fitness of the applicant to perform the duties of the position to which he seeks appointment. This involves, as a matter of course, a world of labor on the part of the director of the census in meeting the demands for employment, usually far in excess of the needs of the service, at a time when his entire energies should be concentrated on the work of preparing for the decennial enumeration; but this is necessary, it is claimed, because of the temporary nature of the service to be rendered and the difficulty which would be experienced by the civil service commission in supplying quickly from their eligible lists, under any system of state apportionment, the necessary force to do the work, covering a limited period only. It is not the purpose, however, to discuss the general question of the relative merits or demerits of the civil service system as applied to the employees of the permanent offices of the government, nor does the writer believe that it is only possible

to secure good and thoroughly efficient clerks through the medium of the civil service law. At the census of 1890, the examination prescribed by the census office examiners was a fairly good test of the general fitness and ability of applicants to do the work for which their services were needed, but the point is clear that the reception by the superintendent of the applicants, and the hearing of their claims for preferment, took much valuable time which, under different conditions, might have been devoted to the more important duties of preparing for the work of enumeration and tabulation, operating to the general advantage of the census itself and to the physical relief of the superintendent.

In compiling the returns of the eleventh census, improved methods of tabulation were used, wherever practicable, and in the tabulation of what may be termed the "individual" statistics, that is, those relating to the living population, the decedents, the afflicted classes (deaf and dumb, blind, insane, feeble-minded, etc.), inmates of benevolent institutions, paupers, and criminals, the principle of using a "card," representing the individual as the unit of tabulation, was recognized for the first time in the Federal census. At the censuses of 1870 and 1880 the tallying system was used, by which the various details of color, sex, age, place of birth, parentage, occupation, etc., were tabulated direct from the original schedules upon tally sheets, singly or in such combination as could be readily obtained by the tally method. But the correlation of data possible under this method of tabulation, particularly if the classifications were at all extended, was exceedingly limited, even with the mechanical extension of the tallying method devised by Colonel Seaton and used in the ninth and tenth censuses; and it was largely on ac-

count of these limitations that experiments were undertaken which finally resulted in the electric tabulating system, invented by Mr. Herman Hollerith, and used in the work of the eleventh census in compiling the statistics of population, mortality, and of crime, pauperism, and benevolence. By the use of the Hollerith system of tabulation, all the information relating to each individual returned on the various schedules of inquiry was recorded on a manila card by means of holes mechanically punched therein, and these cards were then successively sorted and counted on the electric tabulating machines, in order to produce the various combinations of facts needed to make the statistical presentation of the data secured as complete and comprehensive as seemed in any way desirable. In the compilation of the statistics relating to the afflicted classes, and the population of Alaska, the card system of tabulation was also used, but the information was recorded on the card by written symbols and the cards were then sorted and counted by hand, as the limited number of persons involved did not warrant the use of the electric system of tabulation. In the other branches of the work, the returns related principally to the establishment and not the individual, and only required to be aggregated for each of the various areas and industries or in special classifications of which presentation was made in the final report.

If a criticism is made of the work of the eleventh census, in the matter of the tabulation and presentation of the returns, it would be perfectly fair and proper to say that, to a certain extent, perhaps, there is a lack of continuity of effort as compared with preceding censuses, and that, in certain particulars, there is a lack of co-ordination in the work of the census itself. These

deficiencies, wherever they appear, are chargeable, however, largely to the conditions under which the work was carried on, and not to any lack of effort or desire on the part of the census officials to remedy them. Each census is a law unto itself, and from the exigencies of the case each division of the census work is conducted largely without reference to the other branches of the work. The first lack arises from the fact that the basis of the classifications used at the preceding census has not been preserved and, aside from the published results, there are no records available by which it is possible to make an intelligent effort to secure exact comparison with the results of preceding censuses. The second lack is due to the fact that, in the hurry and worry of preparation for the great decennial work, there is no time, so to speak, for unifying the varied work of the census, but each branch has to be entrusted to some one more or less expert in such matters, with no one, aside from the overworked superintendent himself, to hold the reins and guide the great census machine through the tortuous channels of enumeration and tabulation to the final goal of publication. After the completion of the field work, even, the congested condition of affairs in the Census Office, produced by the attempt to cover fifteen or twenty distinct subjects of investigation at one and the same time and to tabulate and produce the results simultaneously, does not admit of thoroughly methodical prosecution of the work such as would naturally be expected to proceed from a stable basis of continuous work and organization, particularly with reference to the careful unification, under the immediate direction of the superintendent, of all the results of the census, wherever such unification was possible and desirable. The further point should not be lost sight of, that the

chief effort of a Census Office loaded down with a multitude of subjects of inquiry, as was the case in 1890, is to complete the work of tabulation and to get the results in the hands of the public at as early a day as possible. Under these conditions of haste, there is little chance for truly scientific work, and the delays that are inevitable, so far as the final publications are concerned, must be charged to the system and not to the officials entrusted with the work. Every effort is made by them to get the results before the public, and at the eleventh census this was largely accomplished at a comparatively early period by the use of the census bulletin, in which all the essential leading facts of that census were issued as fast as available, and many months in advance of the publication of the large quarto volumes containing all the minor details comprehended by the various presentations.

The better provision made for securing to the director of the census the services of expert statisticians and the distribution of the work contemplated by the proposed bill should have, if properly carried out, a marked effect upon the census in the particulars just noted, but the real remedy for existing evils and delays in census work is a permanent Census Office, properly equipped and administered, and working in harmony and in conjunction, so far as may be, with all related interests. The statistics gathered in this country through governmental agencies, national and state, and the minuteness of detail entered into, have excited the wonder of the world. Deficient as we undoubtedly are in registration statistics covering the entire country, still in almost every other field of statistical inquiry, investigation has not stopped at simple facts, but elaborate presentation of the most valuable data has been made, and the

general credibility of such statistics has not been questioned, because they are, in the main, the product of statistical offices permanently organized and thoroughly equipped to do efficient work. And until the census is put on the same basis of permanency and efficiency, the same precision of methods and generally-accepted belief in the substantial accuracy of the results will not be attained and ought not to be expected.

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